

Title: NOVEL

MEGAKARYOCYTIC PROTEIN 09977261 • 060702

TYROSINE KINASES

Inventor(s): Axel ULLRICH et al.

Appl. No.: 09/977,261

CTGGCTCCAAGTGTGCAGCCGGACCGCTCGCGTGTGCAGCCGGCTGGGGAGGCCCTCTGGGGCGGGCGGGGGCTCGGG 90

GCCCCCCTGACCAGAAAACAGGAAGAACCGCTCGTCCACTGGCACCCAGCTCCCTACCTCTGTGCCAGCCGCTGCCCTGTGCCA 180

GGCCATTCCCAGCTCCCCACTGTGACCACTTGCTAGTGTGCTCTCACCTGCCCTAGTTCCCTCTGGGGGGATGGGGGGAG 270

M A G R

SmaI

GCTCTCTGCTTCCCTGGGGCATTCACGGCTGTGATTCTGCTGAGGAACCTCCCCGGTGGCCCTCCGAGGCTGGCAC 360

G S L V S W R A F H G C D S A E E L P R V S P R F L R A W H

SmaI

CCCCCTCCCTCTCACCCAGGATGCCAACGAGCCCTGGGCCCCGGCACCCAGTGTATCACCAAATGCCAGCACCCCCCCCAGCCAG 450

P P P V S A R M P T R R W A P G T O C I T K C E H T R P K P

SluI

KpnI

GGGAGCTGGCTTCCCAAGGGGACGTGGTACCATCCTGGACCCCTGCCAGAACAGAGCTGCTACCGCGTCAAGCACCAACAGTG 540 SH 3

G E L A F R K G D V V T I L E A C E N K S W Y R V K H H T S

PvuII

GACAGGAGGGCTGCTGGCAGCTGGGGCTGGGGAGGGCCCTCCGGACACCCAAACCTCACCTCATGGCTGGTCCAC 630

G Q E G L L A A G A L R E R E A L S A D P K L S L M P W F H

PvuII PstI

CGAACATCTGGGCCACGAGCTGTCAGCAGCTCCAGCTCCAGGATGGCTGTTCTGGGGACTCGGGGCCACCCGGG 720

G K I S G Q E A V Q Q L Q P P E D G L F L V R E S A R H P G

ClaI

ACTACGTCTGTGGTGGCTTGGGGGACGTATCCACTACCGCTGCTGCCACGGGACGGCCACCTCACAAATGGATGGGGCTG 810

D Y V L C V S F G R D V I H Y R V L H R D G H L T I D E A V

TCTTCTGCAACCTCATGGACATGGTGGACCATACAGCAAGGACAAGGGCCTATCTGCACCAACCTGGTGGACACCAAAACGGAAACAGG 900

F F C N L M D M V E H Y S K D K G A I C T K L V R P K R K H

FIG.1A

#4

Title: NOVEL
MEGAKARYOCYTIC PROTEIN 977261 - 060702
TYROSINE KINASES
Inventor(s): Axel ULLRICH et al.
Appl. No.: 09/977,261

PstI

GGACCAACTCGCCGACGGAGCTGGCCAGGCCGGCTCGTTACTGAACCTGCAGCATTGACATTGGAGCACAGATGGAGAGGGAG 990
G T K S A E E E L A R A G W L L N L Q H L T L G A Q I G E G

PSTI

SstI

AGTTGGAGCTGTCTGCAGGCTGACTACCTGGGAAAGCTGGCTGAACAATATCAACTGTGATGTGACAGCCCAGGCCTTCCTGG 1080
E F G A V L Q G E Y L G Q K V A V K N I K C D V T A Q A F L TK

ACGACACGGCCCTCATGACCAAGATCCAACACGAGAACCTGGTCCCTCTCCCTGGCTGATCCTGCCACACGGCTGACATTGTGATGG 1170
D E T A V M T K M Q H E N L V R L L G V I L H Q G L Y I V M

SmaI

PstI

ACCCACTGACCAACGGCAACCTGGTCAACTTCTGGGACCCGGCTGGACCCCTGGTAACACCGCTGACCTCCCTGGAGTTTCTGGC 1260
E H V S K G N L V N F L R T R G R A L V N T A Q L L Q F S L

HinDIII

ACGTCGGGAGGGATGGACTACCTGGACACCAACAACCTGGCACCCGGACCTGGCCGGCAACATCCTGGTCTGAGGGACCTGG 1350
H V A E G M E Y L E S K K L V H R D L A A R N I L V S E D L

TGGCAACCTACCCACTTGGCTGGCAAAGCCCAGGGAACGGCTACACTCAAGGGCTGGCCCTCAAGTGGACGGGGGGAGG 1440
V A K Y S D F G L A K A E R K G I D S S R L P V K W T A P E

NdeI

CTCTAAACACGGGAAGTCACCGCAACTGGATGTCGGACTTTGGCTGCTGGACCTGGCTTCTCATATGGACGGCTCCGT 1530
A L K H G K F T S K S D V W S F G V L L W E V F S Y G R A P

KpnI

ACCTAAAAATGTCACTGAAAGACGTGCGAGCCGCTGGAGAACGGGTACCCATGGAAACCCCCCGAGGGCTGTCAGGGCCGTGCAAG 1620
Y P K M S L K E V S E A V E K G Y R M E P P E G C P G P V H ..

PvuII

SmaI

TCCTCATGACCGCTGGAGCCAGAGCCGGGGGGGACCCCTGGCAAACCTGGGAGAACCTGGGGGGGACCTACCCAGTC 1710
Y L M S S C W E A E P A R R P P F R K L A E K L A R E L R S

FIG.1B

Title: NOVEL
MEGAKARYOCYTIC PROTEIN 977261 . 060202
TYROSINE KINASES
Inventor(s): Axel ULLRICH et al.
Appl. No.: 09/977,261

CACGTCCCCAGCCTCCGTCAGGGCAGGACGCCGACGGTCCACCTGGCCCCAAGCCAGGAGCCCTGACCCCACCCCGTGGCCCT 1800
A G A P A S V S G Q D A D G S T S P R S Q E P

TGCCCCCAGAGCACCGAGAGACTGGAGACTGGCCGTGGGGCACTGACCAGCCCAGGGTCCAGGGGGCAAGTCATCCTCTGG 1890

TGCCCCACAGCAGGGCTGGCCACGTAGGGGCTCTGGCGGGCGTGGACACCCAGACCTGCGAAGGATGATCCCCGATAAACACGG 1980

ATTCTAAGGACTCTAAAAAA 2000

FIG.1C

Title: NOVEL
MEGAKARYOCYTIC PROTEIN 977261 . 060702
TYROSINE KINASES
Inventor(s): Axel ULLRICH et al.
Appl. No.: 09/977,261

CCCCTTTCTAGAGCTTGAGACTAAAG AGGACCCACATGTATACTTCGGCTAGCCAGT AGCATGATAATGGATACA 90
M D T

AAATCTATTCTACAACAACCTCTCAAAAGATCACAGCAAACAAAATGTCACCAATAATTACAAGAACGGCTTTCTTTG 180
K S I L E E L L L K R S Q Q K K K M S P N N Y K E R L F V L

ACCAAAACAAACCTTCCTACTATGAATATGACAAAATGAAAAGGGCACCAGAAAAGGATCCATTGAAATTAGAAAATCAGATGTCTG 270
T K T N L S Y Y E Y D K M K R G S R K G S I E I K K I R C V

GAGAAAGTAAATCTGAGGAGCAGACCCCTGAGAGAGACACTACCCATTGAGATTCTATAAGATGGCTCTCTATGTCTATGCA 360
E K V N L E E Q T P V E R Q Y P F Q I V Y K D G L L Y V Y A PH

TCAAATGAAGAGAGCCCAAGTCAGTCGTTGAAACCATACAAAAGAGATAAGGGTAACCCCCACCTGCTGGTCAAGTACCATAGTGGG 450
S N E E S R S Q W L K A L O K E I R G N P H L L V K Y H S G

TTCTTCGTCGACGGGAAGTCCCTGTTGCCAGCACAGCTGTAAGCAGCCCCACCATGACCTCTGGAAACCATATGCTAACTGCT 540
F F V D G K F L C C Q Q S C K A A P G C T L W E A Y A N L H

ACTGCAGTCATGAAGAGAAACACAGAGTCCACCTTCCCACCTTCCCACAGAGCTGCTGAAGATACCTCCGGCAGTCCCTGTTCTAAATGGAT 630
T A V N E E K H R V P T F P D R V L K I P R A V P V L K M D

GCACCATCTCAAGTACCACTCTAGCCAATATGACAACGAATCAAAGAAAATCGCTCCAGCCACCATCTCAAGTACCACTCTA 720
A P S S S T T L A Q Y D N E S K K N Y G S Q P P S S T S L SH3

GCGCAATATGACAGCAACTAAAGAAAATCTATGGCTCCAGCCAACCTCAACATGCAGTATATTCCAAGGAAGAATTCCTGACTGG 810
A Q Y D S N S K K I Y G S Q P N F N M Q Y I P R E D F P D W

TGCCAAGTAAGAAAATGAAAATGAGCAGCAGCTGAAGATGTCAGCAAGCTGAACTGCTGAAACACAGAAAATGTAATCACACCCCTCA 900
W Q V R K L K S S S S S E D V A S S N Q K E R N V N H T S

AAGATTCATGCCAATTCCCTCACTCAACTTCATCTCAAGAACACGAAAACCTCCATGATTATGACTGGTTGCTGGTAACATCTCCACA 990
K I S W E F P E S S S S E E E N L D D Y D W F A G N I S R

TCACAATCTGAACAGTACTCAGACAAAGGAAAAGGACCATTTATGCTAGAAATTGAGCCAAGTGGAAATGACACACTGTCC 1080
S Q S E Q L L R Q K G K E G A F M V R N S S Q V G M Y T V S SH4

TTATTTACTAAGCTGTAATGATAAAAAGGAACTGTCAAACATTACCAACCTGCAACAAATGCTGAGAACAAATTACCTGGCAGAA 1170
L F S K A V N D K K G T V K H Y H V H T N A E N K L Y L A E

FIG.2A

Title: NOVEL
MEGAKARYOCYTIC PROTEIN TYROSINE KINASES
Inventor(s): Axel ULLRICH et al.
Appl. No.: 09/977,261

AAACTCTTTGATTCCATTCAAAGCTTATTCAACACAATTCAAGGCATGATCACACGGCTCCGCCACCCCTGTCA 1260
N Y C F D S I P K L I H Y H O H N S A G M I T R L R H P V S

ACAAAGCCAACAAGCTCCCCACTCTGTCCTCCGAAATGGAATCTGGAACTGAAAAGAGAAGAGATTACCTGTGAAGGAGCTG 1350
T K A N K V P D S V S L G N G I W E L K R E E I T L L K E L

GCAAGTGGCCACTTGGACTGGTCCAGCTGGCAACTGGAAGGGCAGTATGATCTTGCTTAAGATGATCAAGGAGGGCTCCATGTCA 1440
G S G Q F G V V Q L G K W K G Q Y D V A V K M I K E G S M S

GAAGATGAATTCTTCAGGAGGCCAGACTATGAAACTCAGCCATCCCAACCTGGTAAATTCTATGGACTGTGTCAAACGAATAC 1530
E D E F F Q E A Q T M M K L S H P K L V K F Y G V C S K E Y

CCCATACTACATACTGACTGAATATATAACCAATGGCTCTGGCTGAATTACCTGAGGACTCACGGAAAAGCACTGAAACCTCCCAGCTC 1620 TK
P I Y I V T E Y I S N G C L L N Y L R S H G K G L E P S Q L

TTAGAAATGCTACCATGCTGAAACTATGACTTGGAAATGACAAGGTATGTTCTGATGACCAACTCATACACCGGGACTTGGCTGCTGTAACGTGCTG 1710
L E M C Y D V C E G M A F L E S H Q F I H R D L A A R N C L

GTGGACAGAGATCTCTGCTGAAACTATGACTTGGAAATGACAAGGTATGTTCTGATGACCAACTCATACACCGGGACTTGGCTGCTGTAACGTGCTG 1800
V D R D L C V K V S D F G M T R Y V L D D Q Y V S S V G T K

TTTCCAGTCAAGTGCTAGCTCCAGACCTGTTCTACTTCAAAATACACCGAGCAACTGAGACGTATGGCATTGGATCCTGATGTGG 1890
F P V K W S A P E V F H Y F K Y S S K S D V W A F G I L M W

GAGGTGTTAGCCCTGGGAAGCAGCCATGACTTGTATGACAACCTCCAGTGCTGCAAGCTCTCCAGGGCACAGCTTACGG 1980
E V F S L G K Q P Y D L Y D N S O V V L K V S Q G H R L Y R

CCCCACCTGGCATCCACCCATCTACAGATCATGACAGCTGGCAGGACTTCCAGAAAAGCTCCACATTCAACACTCTG 2070
P H L A S D T I Y Q I M Y S C W H E L P E K R P T F Q Q L L

TCTTCCATTGAACCACCTGGGAAAAGACAAGCATTGAAGAAGAAATTAGGAGTGCTGATAAGAATGAATAGATGCTGCCAGCATT 2160
S S I E P L R E K D K H .

TTCAATTCAACAAACTGCAAGGCATAATGTAATTAGCTAGTTTAATAGTGTCTCTGATTGCTATTAGAATCAA 2250

CAAGGCAGGAAACAAACATTCCCTGAAATTAGCTAAATTAGTAATTGTTATGCTGCCCTGATATAACACTTCCAGCCATA 2340

GCACAGCACATTCAAGACTGCAATATAGAGACTGTTGATGTTAAAGACTGACCAACTGAAAAATTACTTATTGGATATTCAATT 2430

CTTTCTTATATTGTCATGTCACAACAATTAAATACTACCAACTACAAAAAAAAAAAAAA 2500

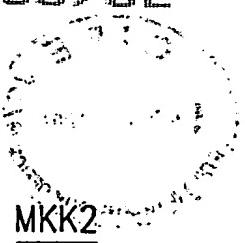
FIG.2B

Title: NOVEL
MEGAKARYOCYTIC PROTEIN^{D 977261 . 060702}
TYROSINE KINASES
Inventor(s): Axel ULLRICH et al.
Appl. No.: 09/977,261

CCGGACTGGTCGAAAGACAGGAACAGACTTGAAACACGGGGAGAGCTCTGGCAAACGAACACGTGGACGTTTACCAAGGATAAGAAG 90
AAAAGACACCTTCTACTGAGCAGCTGCCAGCTCTGCTCAGTTTGCCTCGGGTACCCAGCTCCAGCCACAGAAACCAAGCCGTAAG 180
TCTCTCCAGTAGGACTTGCTGCAACCCAGCTGACTGATCTGAAACGGGACTTGCATACTCTCCAACTATGGTAGTTGGTCTCCT 270
M V S W C
GAATTCAAAGTTGCCTCGTGAAGGAAGATAAGTGGATGGAGAGACTAAGGGAGAGGGAGAACCCCTGCTCTTCTCCCCACCAAG 360
GCACAATGAGCAACATCTGTCAGACGCTCTGGACTACCTAGAACCTATCTCCCTGTTGTCACGGAGCCAGACAAGTCAACCTGA 450
M S N I C Q R L W E Y L E P Y L P C L S T E A D K S T V
TTGAAAATCCAGGGCCCTTGCCTCCCCACTCACAGGGATGGCCACTACTTGTGGCTTGTGTTGATTACCAGGCTGGACTGCTG 540
I E N P G A L C S P Q S Q R H G H Y F V A L F D Y Q A R T A
AGGACTTGACCTCCAGCAGGTGACAAACTCAACTTCTGGACACTTGCATGAGGCTGGCTTGTGAGACACTTGGAGAAAAGAC 630 SH 3
E D L S F R A G D K L Q V L D T L H E G W W F A R H L E K R
GAGATGGCTCCAGTCAGCAACTACAAGCTATATCCTCTAACTACCTGGCTGAGGACACAAGCCTACAGGAGACCCGTGGCTTGT 720
R D G S S Q Q L Q G Y I P S N Y V A E D R S L Q A E P W F F
GAGCAATCGGAAGATCAGATGGAGAGAAACAATATTATATTAGAAAACAAGACGGCTTCTTAATCAGACAAAGTGAACCCAA 810
G A I G R S D A E K O L L Y S E N K T G S F L I R E S E S Q SH 2
AAGGAGAATTCTCTTCACTGGAGCAGTTGAGGACTGTAACACTACAGAATTAAAGACTGGATGAAGGGGATTTTCTCACCC 900
K G E F S L S V L D G A V V K H Y R I K R L D E G G F F L T
GAAGAAGATCTTCAACACTGAACGAATTGAGGACTACACCAAGACAAGTGAACGGCTGTGTCAAGCTGGAAACCATGCT 990
R R R I F S T L N E F V S H Y T K T S D G L C V K L G K P C
TAAAGATCCAGCTCCAGCTCATTGATTGCTGATAAAACCGTGGACCAATGGAGATAGACCCAACTCCATACAGCTGTGAAC 1080
L K I Q V P A P F D L S Y K T V D Q W E I D R N S I Q L L K
GATGGATCTGTCAGTTGGGAAGTATGGAGGCTGTGAACAATACCAACTCCAGTAGCAGTGAAACATTAAACAGGTTCAA 1170
R L G S G Q F G E V W E G L W N N T T P V A V K T L K P G S
TGGATCCAATGACTTCCAGGGAGGCACAGATAATGAAGAACCTAACAGACATCCAAAGCTATCCAGCTTATGGCTTGGACTTAC 1260
M D P N D F L R E A Q I M K N L R H P K L I Q L Y A V C T L

FIG.3

Title: NOVEL
 MEGAKARYOCYTIC PROTEIN TYROSINE KINASES
 Inventor(s): Axel ULLRICH et al.
 Appl. No.: 09/977,261



MKK1

MKK2

HUMAN

| | | | |
|------------|--------|-----|-----|
| | MEG-01 | +++ | +++ |
| MEG/ERYTH | K562 | ++ | + |
| | M07E | ++ | + |
| | HEL | +++ | ++ |
| | KG-1 | + | ++ |
| MYELO/MAC | HL-60 | + | + |
| | TF-1 | + | + |
| | ALL-1 | - | + |
| B-CELL | RAJI | - | - |
| | DAUDI | - | - |
| | MOLT-3 | - | - |
| T-CELL | JURKAT | - | - |
| EPITHELIAL | HELA | - | - |

RODENT

| | | | |
|------------|--------|-----|-----|
| | BM | + | +++ |
| | SPLEEN | +++ | + |
| | THYMUS | - | - |
| | LIVER | - | - |
| | BRAIN | + | - |
| RAT NEURAL | P19 | + | - |

FIG.4

Title: NOVEL
MEGAKARYOCYTIC PROTEIN 977261 . 060702
TYROSINE KINASES
Inventor(s): Axel ULLRICH et al.
Appl. No.: 09/977,261

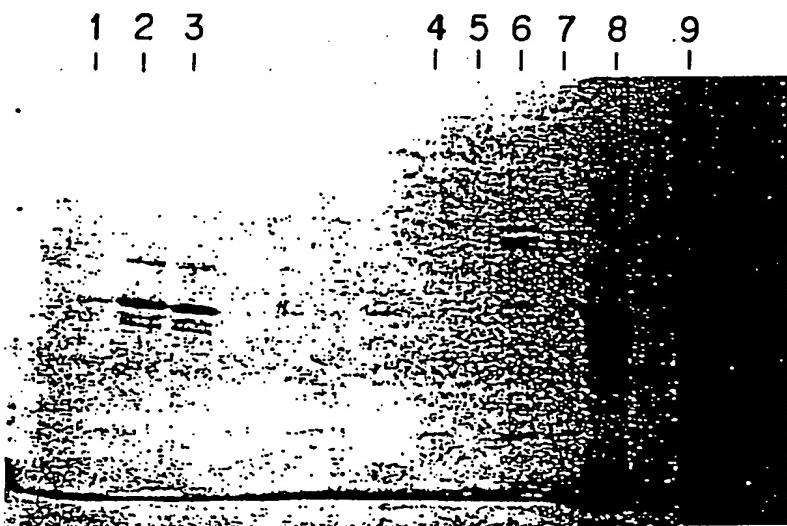


FIG. 5

Title: NOVEL
MEGAKARYOCYTIC PROTEIN 9977261 . 060702
TYROSINE KINASES
Inventor(s): Axel ULLRICH et al.
Appl. No.: 09/977,261

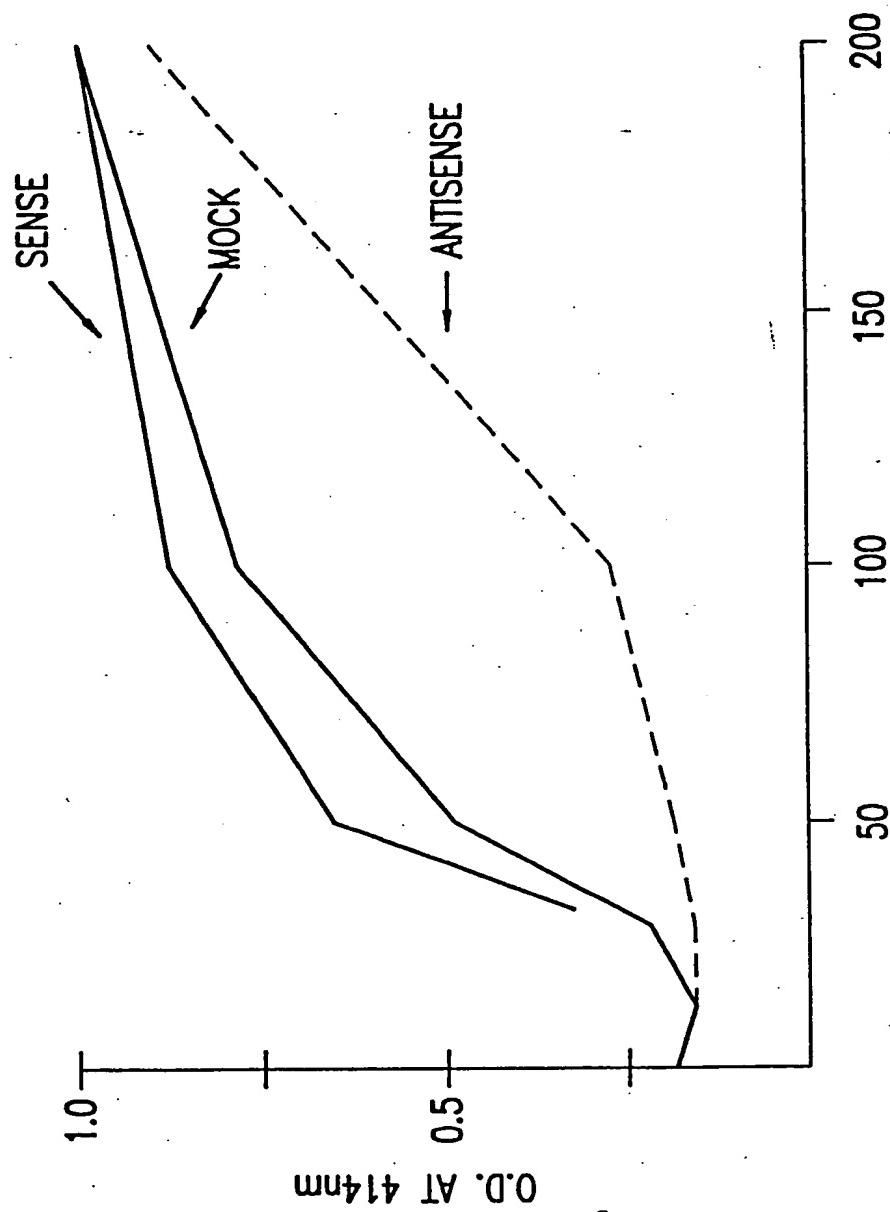


FIG.6A

Title: NOVEL
MEGAKARYOCYTIC PROTEIN 977261 . 060702
TYROSINE KINASES
Inventor(s): Axel ULLRICH et al.
Appl. No.: 09/977,261

MKKI PROTEIN EXPRESSION

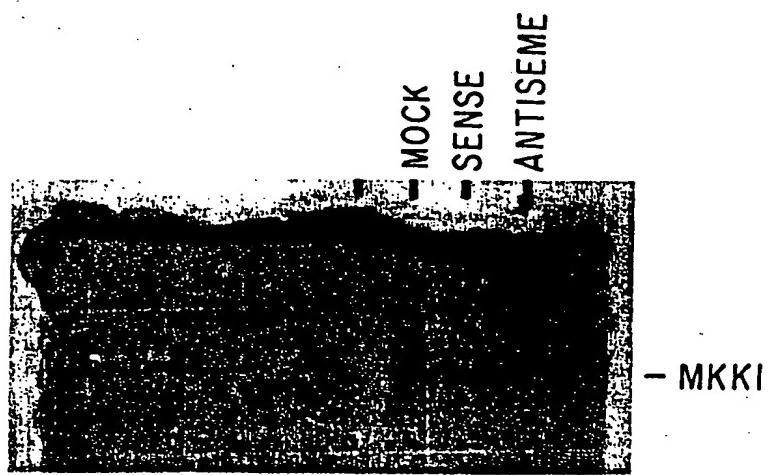


FIG. 6B

Title: NOVEL
MEGAKARYOCYTIC PROTEIN 977261 . 060702
TYROSINE KINASES
Inventor(s): Axel ULLRICH et al.
Appl. No.: 09/977,261

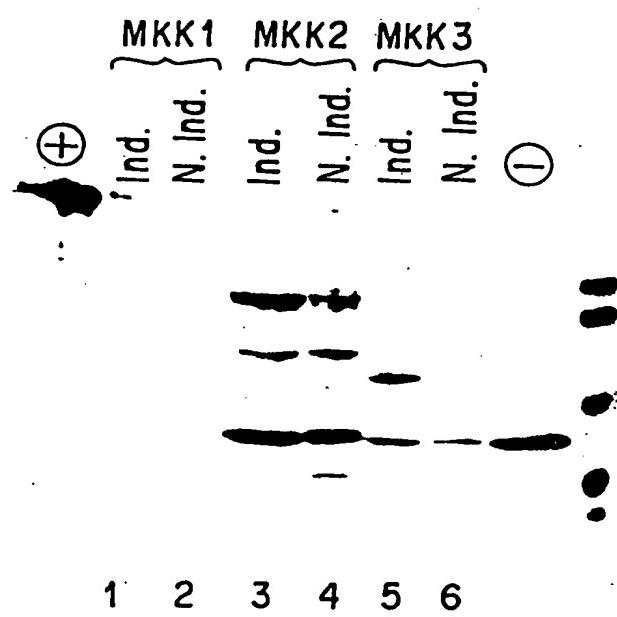


FIG. 7

Title: NOVEL
MEGAKARYOCYTIC PROTEINS
TYROSINE KINASES
Inventor(s): Axel ULLRICH et al.
Appl. No.: 09/977,261

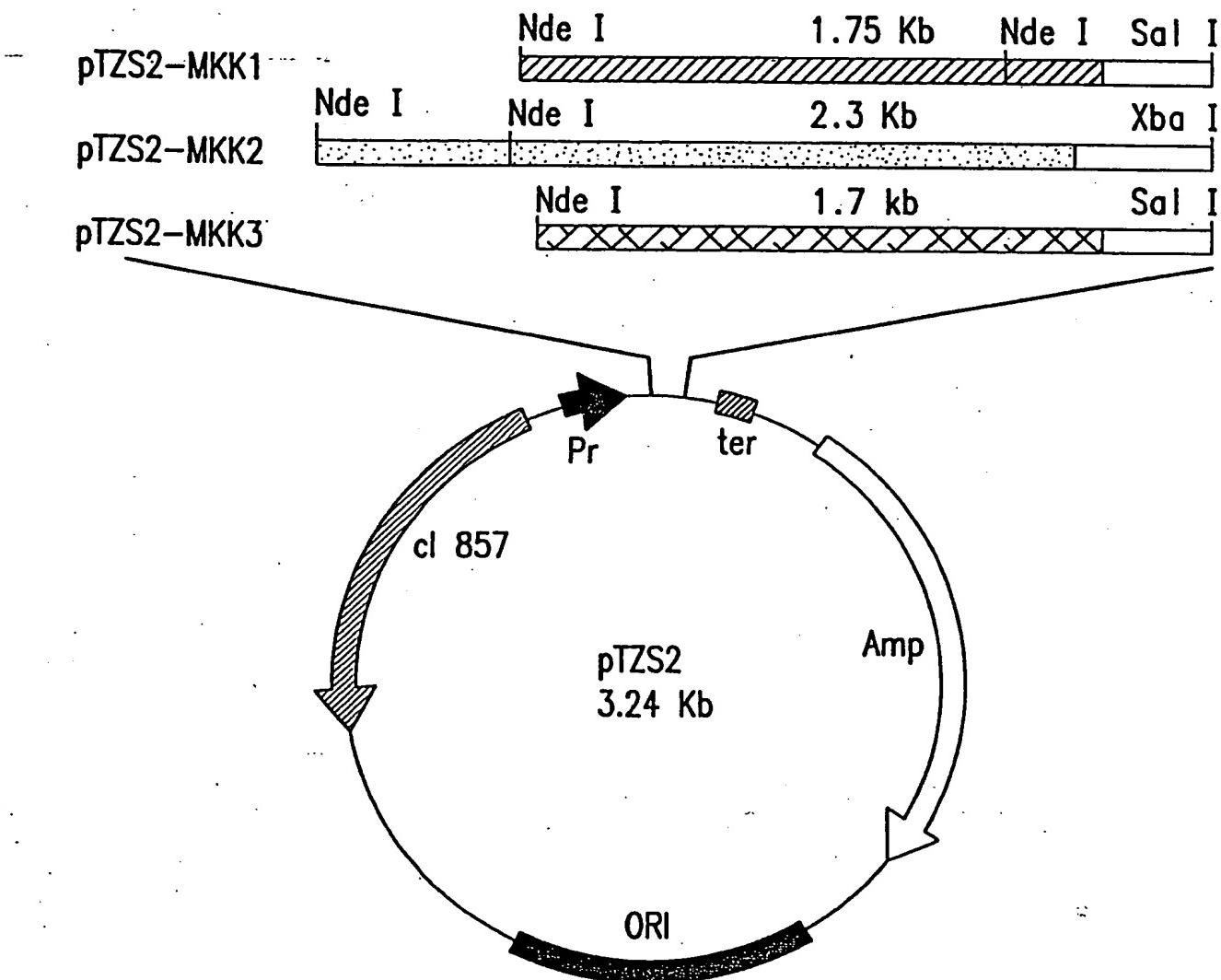


FIG.8

Title: NOVEL
 MEGAKARYOCYTIC PROTEIN 977261 . 060702
 TYROSINE KINASES
 Inventor(s): Axel ULLRICH et al.
 Appl. No.: 09/977,261

MKK1 aa
 hCSK (JH0559)

| | | |
|-----|----------------------------------|---|
| 1 | MAGRGSLVSWRAFHGCDSAEELPRVSPRF | L |
| 1 | MSAIQAA----- | |
| 31 | RAWHPPPVSARMPTRRWAPGTOCITKCEHT | |
| 8 | -----WPSGTETCIAKYNFH | |
| 61 | RPKPGELAFRKGDVVVTILEACENKSWYRVK | |
| 22 | GTAEQDLPFCKGDVLTIVAVTKDPNWyKAK | |
| 91 | HHTSGQEGLLAAGALREREALSAADPKLSLM | |
| 52 | NKV-GREGIIPANYVQKREGVKAGTKLSLM | |
| 121 | PWFHGKISGQEAVQQLOPPEDGLFLVRESA | |
| 81 | PWFHGKITREQAERLLYPPEPETGLFLVREST | |
| 151 | RHPGDYVLCSVSGRDIHYRVLHRDGHLTI | |
| 111 | NYPGDYTLCSVSCDGKVEHYRIMYHASKLSI | |
| 181 | DEAVFFCNLMDMVEHYSKDKGAICTKLVRP | |
| 141 | DEEVYFENLMQLVEHYTSADGLCTRLLIKP | |
| 211 | KRKHGTKSAEEELARAGWLNLQHLLGAQ | |
| 171 | KVMEGTVAAQDEFYRSGWALNMKELKLLQT | |
| 241 | IGEGEFGAVLQGEYLGQKVAVKNIKCDVTA | |
| 201 | IGKGEGFDVMLGDYRGNKVAVKCINKNDATA | |
| 271 | QAFLDETAVMTKMQHENLVRLLGVLHQ-- | |
| 231 | QAFLAEASVMTQLRHNSNLVQLLGVIVEEKG | |
| 299 | GLYIVVMEHVSKGNLVNFLRTRGRALVNTAQ | |
| 261 | GLYIVTETYMAKGSLVDYLRSRGRSVLGGDC | |
| 329 | LLQFSLHVVAEGMEYLESKKLVHRDLAARNI | |
| 291 | LLKFSLDVCCEAMEYLEGNNFVHRDLAARNV | |
| 359 | LVSEDLVAKVSDFGLAKAERKGLDSSRLPV | |
| 321 | LVSEDNVAKVSDFGLTKEASSTQDTGKLPV | |

FIG.9A

Title: NOVEL
MEGAKARYOCYTIC PROTEIN 977261 . 060702
TYROSINE KINASES }
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| | | |
|-----|---|---------------|
| 389 | K W T A P E A L K H G K F T S K S D V W S F G V L L W E V F | MKK1 aa |
| 351 | K W T A P E A L R E K K F S T K S D V W S F G I L L W E I Y | hCSK (JH0559) |
| 419 | S Y G R A P Y P K M S L K E V S E A V E K G Y R M E P P E G | MKK1 aa |
| 381 | S F G R V P Y P R I P L K D V V P R V E K G Y K M D A P D G | hCSK (JH0559) |
| 449 | C P G P V H V L M S S C W E A E P A R R P P F R K L A E K L | MKK1 aa |
| 411 | C P P A V Y E V M K N C W H L D A A M R P S F L Q L R E Q L | hCSK (JH0559) |
| 479 | A R E L R S A G A P A S V S C Q D A D G S T S P R S Q E P | MKK1 aa |
| 441 | E H - - - - - I K T H E L H - - - - - L | hCSK (JH0559) |

FIG.9B

Title: NOVEL
MEGAKARYOCYTIC PROTEIN TYROSINE KINASES
Inventor(s): Axel ULLRICH et al.
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| | | |
|-----|---|---------------|
| 1 | M D T K S I L E E L L L K R S Q Q K K K M S P N N Y K E R L | MKK2 aa |
| 1 | MAA - V I L E S I F L K R S Q Q K K K T S P L N F K K R L | hAtk (X58957) |
| 1 | M N N F I L L E E Q L I K K S Q Q K R R T S P S N F K V R F | hTKT (L10717) |
| 1 | M M V - - - - - | mTec (X5663) |
| 31 | F V L T K T N L S Y Y E -- Y D K M K R G S R K G S I E I K | MKK2 aa |
| 30 | F L L T V H K L S Y Y E Y D F E R G R R G S K K G S I D V E | hAtk (X58957) |
| 31 | F V L T K A S L A Y F E D R - - H G K K R T L K G S I E L S | hTKT (L10717) |
| 4 | - - - - - | mTec (X5663) |
| 59 | K I R C V E K V N L E E Q T P V E R Q - - - - - | MKK2 aa |
| 60 | K I T C V E T V V P E K N P P P E R Q I P R R G E E S S E M | hAtk (X58957) |
| 59 | R I K C V E I V K S D - - - - - | hTKT (L10717) |
| 4 | - - - - - | mTec (X5663) |
| 78 | - - - - - Y P F Q I V Y K D G L L Y V Y A S N E E | MKK2 aa |
| 90 | E Q I S I I E R F P Y P F Q V V Y D E G P L Y V F S P T E E | hAtk (X58957) |
| 70 | - - I S I P C H Y K Y P F Q V V H D N Y L L Y V F A P D R E | hTKT (L10717) |
| 4 | - - - - - S F P V K I N F H S S P - - - - - Q | mTec (X5663) |
| 98 | S R S Q W L K A L Q K E I R G N P H L L V K Y H S G F F V D | MKK2 aa |
| 120 | L R K R W I H Q L K N V I R Y N S D L V Q K Y H P C F W I D | hAtk (X58957) |
| 98 | S R Q R W V L A L K E E T R N N N S L V P K Y H P N F W M D | hTKT (L10717) |
| 17 | S R D R W V K K L K E E I K N N N N I M I K Y H P K F W A D | mTec (X5663) |
| 128 | G K F L C C Q Q S C K A A P G C T L W E A Y A N L H T A V N | MKK2 aa |
| 150 | G Q Y L C C S Q T A K N A M G C Q I L E N R N G S L K P G S | hAtk (X58957) |
| 128 | G K W R C C S Q L E K L A T G C A Q Y D - - - - - P | hTKT (L10717) |
| 47 | G S Y Q C C R Q T E K L A P G C E K Y N L F E S S I - - - | mTec (X5663) |
| 158 | E E K H R V P T F P D R V L K I P R A V P V L K M D A P S S | MKK2 aa |
| 180 | S H R K T K K P L P P - - - T P E E D Q I L K K P L P P E | hAtk (X58957) |
| 149 | T K N A S K K P L P P - - - T P E D N R - - - - - | hTKT (L10717) |
| 73 | - - - - R K T L P P - - - A P E - - - I K K R R P P - | mTec (X5663) |
| 188 | S T T L A Q Y D N E S K K N Y G S Q P P S S S T S L A Q Y D | MKK2 aa |
| 206 | P A A A P V S T S E L K K - - - - - V V A L Y D | hAtk (X58957) |
| 166 | - - - R P L W E P E E T V - - - - - V I A L Y D | hTKT (L10717) |
| 89 | P P I P P E E E N T E E I - - - - - V V A M Y D | mTec (X5663) |

FIG.10A

Title: NOVEL
MEGAKARYOCYTIC PROTEIN TYROSINE KINASES
Inventor(s): Axel ULLRICH et al.
Appl. No.: 09/977,261

| | | |
|-----|---|---|
| 218 | S N S K K I Y G S Q P N F N M Q Y I P R E D F P - D W W Q V | MKK2 aa hAtk (X58957) hTKT (L10717) mTec (X5663) |
| 225 | Y M P M N A N D L Q L R K G D E Y F I L E E S N L P W W R A | |
| 182 | Y Q T N D P Q E L A L R R N E E Y C L L D S S E I H W W R V | |
| 108 | F Q A T E A H D L R L E R G Q E Y I I L E K N D I H W W R A | |
| 247 | R K L K S S S S S E D V A S S N Q K E R N V N H T T S K I S | MKK2 aa |
| 255 | R D -- K N G Q E G Y I P S N Y V T E - A - - - - - - - - - - | hAtk (X58957) |
| 212 | Q D -- R N G H E G Y V P S S Y L V E K S - - - - - - - - - - | hTKT (L10717) |
| 138 | R D - - K - | mTec (X5663) |
| 277 | W E F P E S S S S E E E N L D D Y D W F A G N I S R S Q S | MKK2 aa |
| 273 | - - - - - - - - E D S I E M Y E W Y S K H M T R S Q A | hAtk (X58957) |
| 231 | - - - - - - - - P N N L E T Y E W Y N K S I S R D K A | hTKT (L10717) |
| 141 | - - - - - - - - Y G W Y C R N T N R S K A | mTec (X5663) |
| 307 | E Q L L R Q K G K E G A F M V R N S S Q V G M Y T V S L F S | MKK2 aa |
| 292 | E Q L L K Q E G K E G G F I V R D S S K A G K Y T V S V F A | hAtk (X58957) |
| 250 | E K L L D T G K E G A F M V R D S R T A G T Y T V S V F I | hTKT (L10717) |
| 154 | E Q L L R T E D K E G G F M V R D S S Q P G L Y T V S L Y T | mTec (X5663) |
| 337 | K - A V N D K K G T V K H Y H V H - - T N A E N K L Y L A E | MKK2 aa |
| 322 | K S T - G D P Q G V I R H Y V V - - C S T P Q S Q Y Y L A E | hAtk (X58957) |
| 280 | K A V V S E N N P C I K H Y H I K E T N D N P K R Y Y V A E | hTKT (L10717) |
| 184 | K F G - G E G S S G F R H Y H I K E T A T S P K K Y Y L A E | mTec (X5663) |
| 364 | N Y C F D S I P K L I H Y H Q H N S A G M I T R L R H P V S | MKK3 aa |
| 349 | K H L F S T I P E L I N Y H Q H N S A G L I S R L K Y P V S | hAtk (X58957) |
| 310 | K Y V F D S I P L L I N Y H Q H N G G G L V T R L R Y P V C | hTKT (L10717) |
| 213 | K H A F G S I P E I I E Y H K H N A A G L V T R L R Y P V S | mTec (X5663) |
| 394 | T K A N K V P D S V S L G N G I W E L K R E E I T L L K E L | MKK2 aa |
| 379 | Q Q N K N A P S T A G L G Y G S W E I D P K D L T F L K E L | hAtk (X58957) |
| 340 | F G R Q K A P V T A G L R Y G K W V I D P S E L T F V Q E I | hTKT (L10717) |
| 243 | T K G K N A P T T A G F S Y D K W E I N P S E L T F M R E L | mTec (X5663) |
| 424 | G S G Q F G V V Q L G K W K G Q Y D V A V K M I K E G S M S | MKK2 aa |
| 409 | G T G Q F G V V K Y G K W R G Q Y D V A I K M I K E G S M S | hAtk (X58957) |
| 370 | G S G Q F G L V H L G Y W L N K D K V A I K T I R E G A M S | hTKT (L10717) |
| 273 | G S G L F G V V R L G K W R A Q Y K V A I K A I R E G A M C | mTec (X5663) |

FIG.10B

| | | |
|-----|---|---|
| 454 | E D E F F Q E A Q T M M K L S H P K L V K F Y G V C S K E Y | MKK2 aa hAkt (X58957) hTKT (L10717) mTec (X5663) |
| 439 | E D E F I E E A K V M M N L S H E K L V Q L Y G V C T K Q R | |
| 400 | E E D F I E E A E V M M K L S H P K L V Q L Y G V C L E Q A | |
| 303 | E E D F I E E A K V M M K L T H P K L V Q L Y G V C T Q Q K | |
| 484 | P I Y I V T E Y I S N G C L L N Y L R S H G K G L E P S Q L | MKK2 aa |
| 469 | P I F I I T E Y M A N G C L L N Y L R E M R H R F Q T Q Q L | hAkt (X58957) |
| 430 | P I C L V F E F M E H G C L S D Y L R T Q R G L F A A E T L | hTKT (L10717) |
| 333 | P I Y I V T E F M E R G C L L N F L R Q R Q G H F S R D M L | mTec (X5663) |
| 514 | L E M C Y D V C E G M A F L E S H Q F I H R D L A A R N C L | MKK2 aa |
| 499 | L E M C K D O V C E A M E Y L E S K Q F L H R D L A A R N C L | hAkt (X58957) |
| 460 | L G M C L D O V C E G M A Y L E E A C V I H R D L A A R N C L | hTKT (L10717) |
| 363 | L S M C Q D V C E G M E Y L E R N S F I H R D L A A R N C L | mTec (X5663) |
| 544 | V D R D L C V K V S D F G M T R Y V L D D Q Y V S S V G T K | MKK2 aa |
| 529 | V N D Q G V V K V S D F G L S R Y V L D D E Y T S S V G S K | hAkt (X58957) |
| 490 | V G E N Q V I K V S D F G M T R F V L D D Q Y T S S T G T K | hTKT (L10717) |
| 393 | V N E A G V V K V S D F G M A R Y V L D D Q Y T S S S G A K | mTec (X5663) |
| 574 | F P V K W S A P E V F H Y F K Y S S K S D V W A F G I L M W | MKK2 aa |
| 559 | F P V R W S P P E V L M Y S K F S S K S D I W A F G V L M W | hAkt (X58957) |
| 520 | F P V K W A S P E V F S F S R Y S S K S D V W S F G V L M W | hTKT (L10717) |
| 423 | F P V K W C P P E V F N Y S R F S S K S D V W S F G V L M W | mTec (X5663) |
| 604 | E V F S L G K Q P Y D L Y D N S Q V V L K V S Q G H R L Y R | MKK2 aa |
| 589 | E I Y S L G K M P Y E R F T N S E T A E H I A Q G L R L Y R | hAkt (X58957) |
| 550 | E V F S E G K I P Y E N R S N S E V V E D I S T G F R L Y K | hTKT (L10717) |
| 453 | E I F T E G R M P F E K N T N Y E V V T M V T R G H R L H R | mTec (X5663) |
| 634 | P H L A S D T I Y Q I M Y S C W H E L P E K R P T F Q Q L L | MKK2 aa |
| 619 | P H L A S E K V Y T I M Y S C W H E K A D E R P T F K I L L | hAkt (X58957) |
| 580 | P R L A S T H V Y Q I M N H C W K E R P E D R P A F S R L L | hTKT (L10717) |
| 483 | P K L A T K Y L Y E V M L R C W Q E R P E G R P S F E D L L | mTec (X5663) |
| 664 | S S I E P L R E K D K H | MKK2 aa |
| 649 | S N I I L D V M D E E S | hAkt (X58957) |
| 610 | R Q L A E I A E S - - - G L | hTKT (L10717) |
| 513 | R T I D E L V E C E E T F G R | mTec (X5663) |

FIG.10C

Title: NOVEL
MEGAKARYOCYTIC PROTEIN TYROSINE KINASES
Inventor(s): Axel ULLRICH et al.
Appl. No.: 09/977,261

| | | |
|----|---|-------------|
| 1 | M S N I C Q R L W E - - - - - | MKK3 MPI aa |
| 1 | M G C V Q C K D K E A - T - - - | hFyn |
| 1 | M G C V H C K E K I S - G - - - | cYrk |
| 1 | M G S N K S K P K D A - S Q R - - | hSrc |
| 1 | M G C I K S K E N K S - P A I - - | hYes |
| 1 | M G C V F C K K L E P - V A T A K E | hFgr |
| 1 | M G C I K S K G K D S L S D D G V D L | hLyn |
| 1 | M G S M K S K - - - F L Q V G G N T F | hHck |
| 1 | M G C G C S S - - - H P E D D W M E N | hLck |
| 1 | M G L L S S K R Q V S E K G K G W S P V K | mBlk |
| 11 | - - - - - Y L E P | MKK3 MPI aa |
| 26 | S G Y R Y G T D P T P Q H Y P S F G V T S I P N - - - | hFyn |
| 26 | P P S Q Y D P D P T - Q L S G A F - - - T H I P D - - - | cYrk |
| 28 | G G G A F P A S Q T P S K P A S A D G H R G P S A A F A P A | hSrc |
| 28 | S V S H Y G A E P T T V S P C P S S S A K G T A V N F S S L | hYes |
| 30 | A A D H Y G P D P T K A R P A S - S F A H I P N - - - Y S N F | hFgr |
| 30 | T I Y V R D P T S N K Q Q R P V P E S Q L L P G Q R F Q T K | hLyn |
| 28 | P V Y V P D P T S T I K P G P N S H N S N T P G I R - - - | hHck |
| 26 | P I V P L D G K G T L L I R N G S E V R D - P L V T Y E G S | hLck |
| 31 | P L P P L V V F N H L A P P S P N Q - - - - - | mBlk |
| 15 | Y L P C L S T E A D K S T V I E N P G A L C S P Q S Q R H G | MKK3 MPI aa |
| 54 | H A A - - - G G Q G L T V F G G V N - - - S S S H T G T L R T | hFyn |
| 51 | H A A - - - A V S P P V P F S G P G F Y P C N T L Q A H S S | cYrk |
| 58 | A A E P - - - - - K L F G G F N S S D T V T S P Q R A G | hSrc |
| 58 | S M T P F G G S S G V T P F G G A S S S F S V V P S S Y P A | hYes |
| 57 | S S Q A I N P G - - - F - - - - - L D S G T I R G | hFgr |
| 60 | D P E E - - - - - Q G - - - - - | hLyn |
| 54 | E A G S - - - - - E D - - - - - | hHck |
| 55 | N P P A - - - - - S P L Q D - - - - - | hLck |
| 49 | D P D E - - - - - E E - - - - - | mBlk |
| 45 | H - - - - - Y F V A L F D Y Q A R T A E D L S F R A G D K | MKK3 MPI aa |
| 79 | R G G T G V T L F V A L Y D Y E A R T E D D L S F H K G E K | hFyn |
| 78 | I T G G G V T L F I A L Y D Y E A R T E D D L S F Q K G E K | cYrk |
| 81 | P L A G G V T T F V A L Y D Y E S R T E T D L S F K K G E R | hSrc |
| 88 | G L T G G V T I F V A L Y D Y E A R T T E D L S F K K G E R | hYes |
| 74 | V S G I G V T L F I A L Y D Y E A R T E D D L T F T K G E K | hFgr |
| 66 | - - - - - D I V V A L Y P Y D G I H P D D L S F K K G E K | hLyn |
| 60 | - - - - - I I V V A L Y D Y E A I H H E D L S F Q K G D Q | hHck |
| 64 | - - - - - N L V I A L H S Y E P S H D G D L G F E K G E Q | hLck |
| 55 | - - - - - R F V V A L F D Y A A V N D R D L Q V L K G E K | mBlk |

FIG.11A

Title: NOVEL
MEGAKARYOCYTIC PROTEIN
TYROSINE KINASES
Inventor(s): Axel ULLRICH et al.
Appl. No.: 09/977,261

| | | |
|-----|---|-------------|
| 69 | L Q V I L D T L H E G W W F A R H L E K R R D G S S Q Q L Q G | MKK3 MPI aa |
| 109 | F Q I I L N S S E G D W W E A R S L I T G E T G - - - - - | hFyn |
| 108 | F H I I I N N T E G D W W E A R S L S S G A T G - - - - - | cYrk |
| 111 | L Q I V N N T E G D W W L A H S L S T G Q T G - - - - - | hSrc |
| 118 | F Q I I I N N T E G D W W E A R S I A T G K N G - - - - - | hYes |
| 104 | F H I I I N N T E G D W W E A R S L S S G K T G - - - - - | hFgr |
| 90 | M K V I L E E H - G E W W K A K S L L T K K E G - - - - - | hLyn |
| 84 | M V V I L E E S - G E W W K A R S L A T R K E G - - - - - | hHck |
| 88 | L R I L E Q S - G E W W K A Q S L T T G Q E G - - - - - | hLck |
| 79 | L Q V I L R S T - G D W W L A R S L V T G R E G - - - - - | mBik |
| 99 | Y I P S N Y V A E D R S L Q A E P W F F G A I G R S D A E K | MKK3 MPI aa |
| 132 | Y I P S N Y V A P V D S I Q A E E W Y F G K L G R K D A E R | hFyn |
| 131 | Y I P S N Y V A P V D S I Q A E E W Y F G K I G R K D A E R | cYrk |
| 134 | Y I P S N Y V A P S D S I Q A E E W Y F G K I T R E S E R | hSrc |
| 141 | Y I P S N Y V A P A D S I Q A E E W Y F G K M G R K D A E R | hYes |
| 127 | C I P S N Y V A P V D S I Q A E E W Y F G K I G R K D A E R | hFgr |
| 112 | F I P S N Y V A K L N T L E T E E W F F K D I T R K D A E R | hLyn |
| 106 | Y I P S N Y V A R V D S L E T E E W F F K G I S R K D A E R | hHck |
| 110 | F I P F N F V A K A N S L E P E P W F F K N L S R K D A E R | hLck |
| 101 | Y V P S N F V A P V E T L E V E K W F F R T I S R K D A E R | mBik |
| 129 | Q L L Y S E N K T G S F L I R E S E S Q K G E F S L S V L D | MKK3 MPI aa |
| 162 | Q L L S F G N P R G T F L I R E S E T T K G A Y S L S I R D | hFyn |
| 161 | Q L L C H G N C R G T F L I R E S E T T K G A Y S L S I R D | cYrk |
| 164 | L L L N A E N P R G T F L V R E S E T T K G A Y C L S V S D | hSrc |
| 171 | L L L N P G N Q R G I F L V R E S E T T K G A Y S L S I R D | hYes |
| 157 | Q L L S P G N P Q G A F L I R E S E T T K G A Y S L S I R D | hLyn |
| 142 | Q L L A P G N S A G A F L I R E S E T L K G S F S L S V R D | hHck |
| 136 | Q L L A P G N M L G S F M I R D S E T T K G S Y S L S V R D | hHck |
| 140 | Q L L A P G N T H G S F L I R E S E S T A G S F S L S V R D | hLck |
| 131 | Q L L A P M N K A G S F L I R E S E S N K G A F S L S V K D | mBik |
| 159 | - - - - G A V V K H Y R I K R L D E G G F F L T R R R I F | MKK3 MPI aa |
| 192 | W D D M K G D H V K H Y K I R K L D N G G Y Y I T T R A Q F | hFyn |
| 191 | W D E A K G D H V K H Y K I R K L D S G G Y Y I T T R A Q F | cYrk |
| 194 | F D N A K G L N V K H Y K I R K L D S G G F Y I T S R T Q F | hSrc |
| 201 | W D E I R G D N V K H Y K I R K L D N G G Y Y I T T R A Q F | hYes |
| 187 | W D Q T R G D H V K H Y K I R K L D M G G Y Y I T T R V Q F | hFgr |
| 172 | F D P V H G D V I K H Y K I R S L D N G G Y Y I S P R I T F | hLyn |
| 166 | Y D P R Q G D T V K H Y K I R T L D N G G F Y I S P R S T F | hHck |
| 170 | F D Q N Q G E V V K H Y K I R N L D N G G F Y I S P R I T F | hLck |
| 161 | I T T - Q G E V V K H Y K I R S L D N G G Y Y I S P R I T F | mBik |

FIG.11B

Title: NOVEL
MEGAKARYOCYTIC PROTEIN
TYROSINE KINASES

69977261 . 060702

Inventor(s): Axel ULLRICH et al.
Appl. No.: 09/977,261

| | | |
|-----|---|-------------|
| 184 | S T L N E F V S H Y T K T S D G L C V K L G K P C L K I Q V | MKK3 MPI aa |
| 222 | E T L Q Q L V Q H Y S E R A A G L C C R L V V P C H K G M - | hFyn |
| 221 | D T I Q Q L V Q H Y I E R A A G L C C R L A V P C P K G T - | cYrk |
| 224 | N S L Q Q L V A Y Y S K H A D G L C H R L T T V C P T S K - | hSrc |
| 231 | D T L Q K L V K H Y T E H A D G L C H K L T T V C P T V K - | hYes |
| 217 | N S V Q E L V Q H Y M E V N D G L C N L L I A P C T I M K - | hFgr |
| 202 | P C I S D M I K H Y Q K Q A D G L C R R L E K A C I S P K - | hLyn |
| 196 | S T L Q E L V D H Y K K G N D G L C Q K L S V P C M S S K - | hHck |
| 200 | P G L H E L V R H Y T N A S D G L C T R L S R P C Q T Q K - | hLck |
| 190 | P T L Q A L V Q H Y S K K G D G L C Q K L T L P C V N L A - | mBik |
| 214 | P A P F D L S Y K T V D Q W E I D R N S I Q L L K R L G S G | MKK3 MPI aa |
| 251 | P R L T D L S V K T K D V W E I P R E S L Q L I K R L G N G | hFyn |
| 250 | P K L A D L S V K T K D V W E I P R E S L Q L L Q K L G N G | cYrk |
| 253 | P Q T Q G L A --- K D A W E I P R E S L R L E V K L G Q G | hSrc |
| 260 | P Q T Q G L A --- K D A W E I P R E S L R L E V K L G Q G | hYes |
| 246 | P Q T L G L A --- K D A W E I S R S S I T L E R R L G T G | hFgr |
| 231 | P Q --- K P W D K D A W E I P R E S I K L V K R L G A G | hLyn |
| 225 | P Q --- K P W E K D A W E I P R E S L K L E K K L G A G | hHck |
| 229 | P Q --- K P W W E D E W E V P R E T L K L V E R L G A G | hLck |
| 219 | P K --- N L W A Q D E W E I P R Q S L K L V R K L G S G | mBik |
| 244 | Q F G E V W E G L W N N T T P V A V K T L K P G S M D P N D | MKK3 MPI aa |
| 281 | Q F G E V W M G T W N G N T K V A I K T L K P G T M S P E S | hFyn |
| 280 | Q F G E V W M G T W N G T T K V A V K T L K P G T M S P E A | cYrk |
| 280 | C F G E V W M G T W N G T T R V A I K T L K P G T M S P E A | hSrc |
| 287 | C F G E V W M G T W N G T T K V A I K T L K P G T M M P E A | hYES |
| 273 | C F G D V W L G T W N G S T K V A V K T L K P G T M S P K A | hFgr |
| 257 | Q F G E V W M G Y Y N N S T K V A V K T L K P G T M S V O A | hLyn |
| 251 | Q F G E V W M A T Y N K H T K V A V K T M K P G S M S V E A | hHck |
| 255 | Q F G E V W M G Y Y N G H T K V A V K S L K Q G S M S P D A | hLck |
| 245 | Q F G E V W M G Y Y K N N M K V A I K T L K E G T M S P E A | mBik |
| 274 | F L R E A Q I M K N L R H P K L I Q L Y A V C T L E D P I Y | MKK3 MPI aa |
| 311 | F L E E A Q I M K K L K H D K L V Q L Y A V V S - E E P I Y | hFyn |
| 310 | F L E E A Q I M K R L R H D K L V Q L Y A V V S - E E P I Y | cYrk |
| 310 | F L Q E A Q V M K K L R H E K L V Q L Y A V V S - E E P I Y | hSrc |
| 317 | F L Q E A Q I M K K L R H D K L V P L Y A V V S - E E P I Y | hYes |
| 303 | F L E E A Q V M K L L R H D K L V Q L Y A V V S - E E P I Y | hFgr |
| 287 | F L E E A N L M K T L Q H D K L V R L Y A V V T R E E P I Y | hLyn |
| 281 | F L A E A N V M K T L Q H D K L V K L H A V V T K E - P I Y | hHck |
| 285 | F L A E A N L M K Q L Q H Q R L V R L Y A V V T - Q E P I Y | hLck |
| 275 | F L G E A N V M K T L Q H E R L V R L Y A V V T R E - P I Y | mBik |

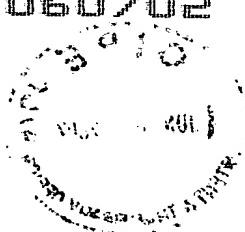
FIG.11C

| | | |
|-----|---|-------------|
| 304 | I I T E L M R H G S L Q E Y L Q N D T G S K I H L T Q Q V D | MKK3 MPI aa |
| 340 | I V T E Y M N K G S L L D F L K D G E G R A L K L P N L V D | hFyn |
| 339 | I V T E F M S Q G S L L D F L K D G D G R Y L K L P Q L V D | cYrk |
| 339 | I V T E Y M S K G S L L D F L K G E T G K Y L R L P Q L V D | hSrc |
| 346 | I V T E F M S K G S L L D F L K E G D G K Y L K L P Q L V D | hYes |
| 332 | I V T E F M C H G S L L D F L K N P E G Q D L R L P Q L V D | hFgr |
| 317 | I I T E Y M A K G S L L D F L K S D E G G K V L L P K L I D | hLyn |
| 310 | I I T E F M A K G S L L D F L K S D E G S K Q P L P K L I D | hHck |
| 314 | I I T E Y M E N G S L V D F L K T P S G I K L T I N K L L D | hLck |
| 304 | I V T E Y M A R G C L L D F L K T D E G S R L S L P R L I D | mBik |

| | | |
|-----|---|-------------|
| 334 | M A A Q V A S G M A Y L E S R N Y I H R D L A A R N V L V G | MKK3 MPI aa |
| 370 | M A A Q V A A G M A Y I E R M N U I H R D L R S A N I L V G | hFyn |
| 369 | M A A Q I A A G M A Y I E R M N Y I H R D L R A A N I L V G | cYrk |
| 369 | M A A Q I A S G M A Y V E R M N Y V H R D L R A A N I L V G | hSrc |
| 376 | M A A Q I A D G M A Y I E R M N Y I H R D L R A A N I L V G | hYes |
| 362 | M A A Q V A E G M A Y M E R M N Y I H R D L R A A N I L V G | hFgr |
| 347 | F S A Q I A E G M A Y I E R K N Y I H R D L R A A N V L V S | hLyn |
| 340 | F S A Q I A E G M A F I E Q R N Y I H R D L R A A N I L V S | hHck |
| 344 | M A A Q I A E G M A F I E E R N Y I H R D L R A A N I L V S | hLck |
| 334 | M S A Q V A E G M A Y I E R M N S I H R D L R A A N I L V S | mBik |

| | | |
|-----|---|-------------|
| 364 | E H N I Y K V A D F G L A R V F K V D N E D I Y E S R H E I | MKK3 MPI aa |
| 400 | N G L I C K I A D F G L A R L I --- E D N E Y T A R Q G A | hFyn |
| 399 | D N L V C K I A D F G L A R L I --- E D N E Y T A R Q G A | cYrk |
| 399 | E N L V C K V A D F G L A R L I --- E D N E Y T A R Q G A | hSrc |
| 406 | E N L V C K I A D F G L A R L I --- E D N E Y T A R Q G A | hYes |
| 392 | E R L A C K I A D F G L A R L I --- K D D E Y N P C Q G S | hFgr |
| 377 | E S L M C K I A D F G L A R V I --- E D N E Y T A R E G A | hLyn |
| 370 | A S L V C K I A D F G L A R V I --- E D N E Y T A R E G A | hHck |
| 374 | D T L S C K I A D F G L A R L I --- E D N E Y T A R E G A | hLck |
| 364 | E T L C C K I A D F G L A R I I --- D S E Y T A Q E G A | mBik |

| | | |
|-----|---|-------------|
| 394 | K L P V K W T A P E A I R S N K F S I K S D V W S F G I L L | MKK3 MPI aa |
| 427 | K F P I K W T A P E A A L Y G R F T I K S D V W S F G I L L | hFyn |
| 426 | K F P I K W T A P E A A L F G K F T I K S D V W S F G I L L | cYrk |
| 426 | K F P I K W T A P E A A L Y G R F T I K S D V W S F G I L L | hSrc |
| 433 | K F P I K W T A P E A A L Y G R F T I K S D V W S F G I L L Q | hYes |
| 419 | K F P I K W T A P E A A L F G R F T I K S D V W S F G I L L | hFgr |
| 404 | K F P I K W T A P E A I N F G C F T I K S D V W S F G I L L | hLyn |
| 397 | K F P I K W T A P E A I N F G S F T I K S D V W S F G I L L | hHck |
| 401 | K F P I K W T A P E A I N Y G T F T I K S D V W S F G I L L | hLck |
| 390 | K F P I K W T A P E A I H F G V F T I K A D V W S F G V L L | mBik |



| | | |
|-----|---|-------------|
| 424 | Y E I I T Y G K M P Y S G M T G A Q V I Q M L A Q N Y R L P | MKK3 MPI aa |
| 457 | T E L V T K G R V P Y P G M N N R E V L E Q V E R G Y R M P | hFyn |
| 456 | T E L V T K G R V P Y P G M N N R E V L E Q V E R G Y R M Q | cYrk |
| 456 | T E L T K G R V P Y P G M V N R E V L D Q V E R G Y R M P | hSrc |
| 463 | T E L V T K G R V P Y P G M V N R E V L E Q V E R G Y R M P | hYes |
| 449 | T E L I T K G R I P Y P G M N K R E V L E Q V E Q G Y H M P | hFgr |
| 434 | Y E I I V T Y G K I P Y P G R T N A D V M T A L S Q G Y R M P | hLyn |
| 427 | M E I I V T Y G R I P Y P G M S N P E V I R A L E R G Y R M P | hHck |
| 431 | T E I I V T H G R I P Y P G M T N P E V I Q N L E R G Y R M V | hLck |
| 420 | M V I I V T Y G R V P Y P G M S N P E V I R S L E H G Y R M P | mBik |
| 454 | Q P S N C P Q Q F Y N - I M L E C W N A E P K E R P T F E T | MKK3 MPI aa |
| 487 | C P Q D C P I S L H - E L M I H C W K K D P E E R P T F E Y | hFyn |
| 486 | C P G G C P P S L H - D V M V Q C W K R E P E E R P T F E Y | cYrk |
| 486 | C P P E C P E S L H - D L M C Q C W R K E P E E R P T F E Y | hSrc |
| 493 | C P Q G C P E S L H - E L M N L C W K K D P D E R P T F E Y | hYes |
| 479 | C P P G C P A S L Y - E A M E Q T W R L D P E E R P T F E Y | hFgr |
| 464 | R V E N C P D E L Y - D I M K M C W K E K A E E R P T F D Y | hLyn |
| 457 | R P E N C P E E L Y - N I M M R C W K N R P E E R P T F E Y | hHck |
| 461 | R P D N C P E E L Y - Q L M R L C W K E R P E D R P T F D Y | hLck |
| 450 | C P E T C P P E L Y N D I I T E C W R G R P E E R P T F E F | mBik |
| 483 | L R W K I L E D Y F E - T D S S Y S D A N N F I R | MKK3 MPI aa |
| 516 | L Q S F L E D Y F T A T E P Q Y Q P G E N - - - L | hFyn |
| 515 | L Q S F L E D Y F T A T E P Q Y Q P G D N - - - Q | cYrk |
| 515 | L Q A F L E D Y F T S T E P Q Y Q P G E N - - - L | hSrc |
| 522 | I Q S F L E D Y F T A T E P Q Y Q P G E N - - - L | hYes |
| 508 | L Q S F L E D Y F T S A E P Q Y Q P G D Q - - - T | hFgr |
| 493 | L Q S V L D D F Y T A T E G Q Q Y Q Q - - Q - - P | hLyn |
| 486 | I Q S V L D D F Y T A T E S Q Y Q Q - - Q - - P | hHck |
| 490 | L R S V L E D F F T A T E G Q Q Y Q P - - Q - - P | hLck |
| 480 | L Q S V L E D F Y T A T E G Q Q Y E L - - Q - - P | mBik |

FIG.11E

Title: NOVEL MEGAKARYOCYTIC PROTEIN
TYROSINE KINASES
Inventor(s): Axel ULLRICH et al.
Appl. No.: 09/977,261 . 060702

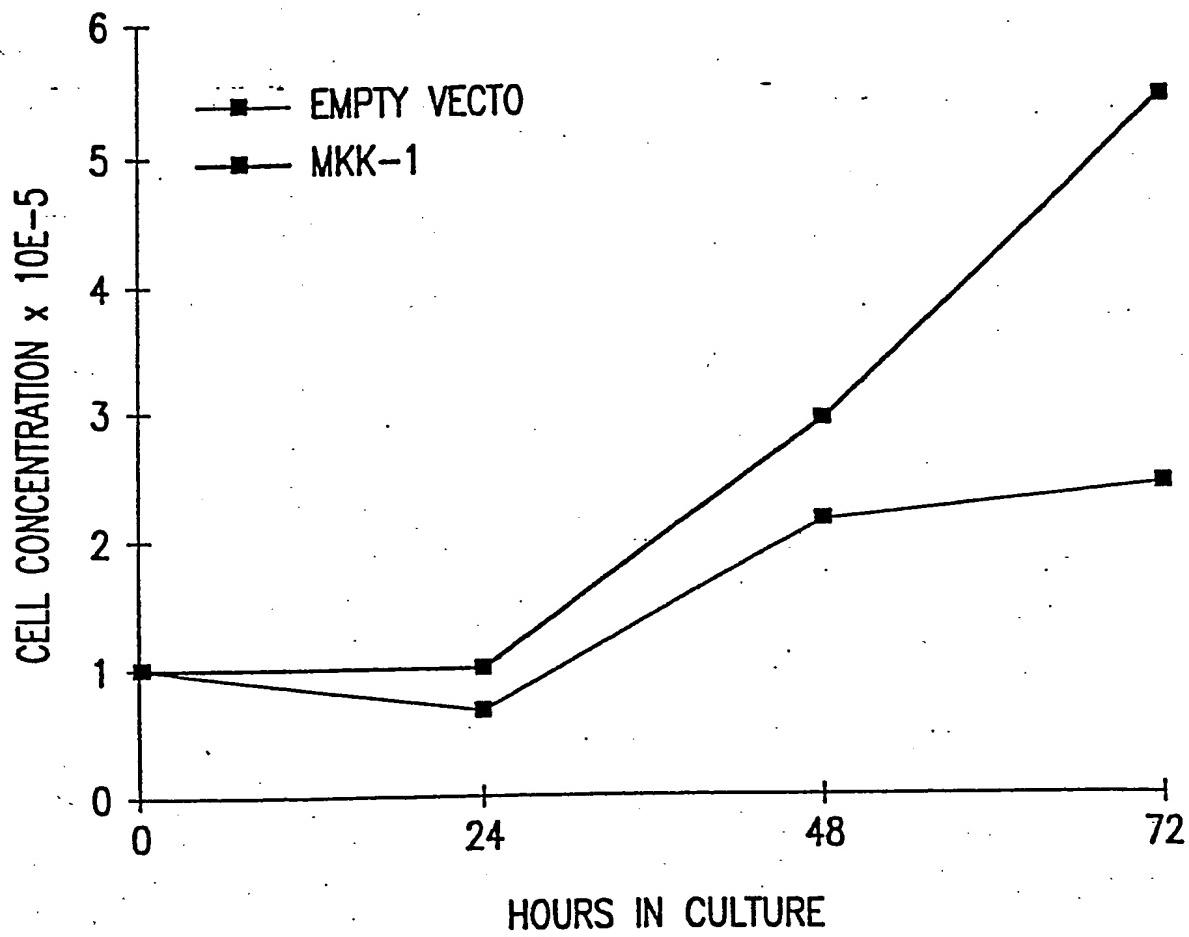


FIG.12

Title: NOVEL
MEGAKARYOCYTIC PROTEIN
TYROSINE KINASES
Inventor(s): Axel ULLRICH et al.
Appl. No.: 09/977,261

PPN9777861 - 060702

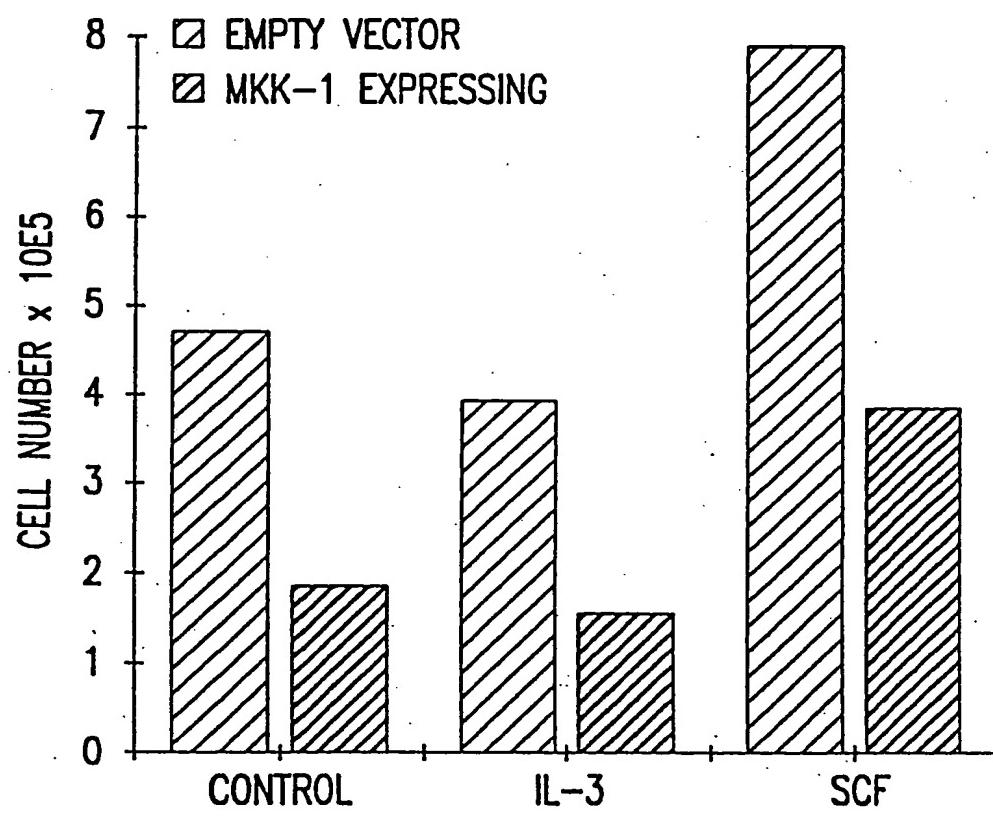


FIG.13

Title: NOVEL
MEGAKARYOCYTIC PROTEIN
TYROSINE KINASES
Inventor(s): Axel ULLRICH et al.
Appl. No.: 09/977,261

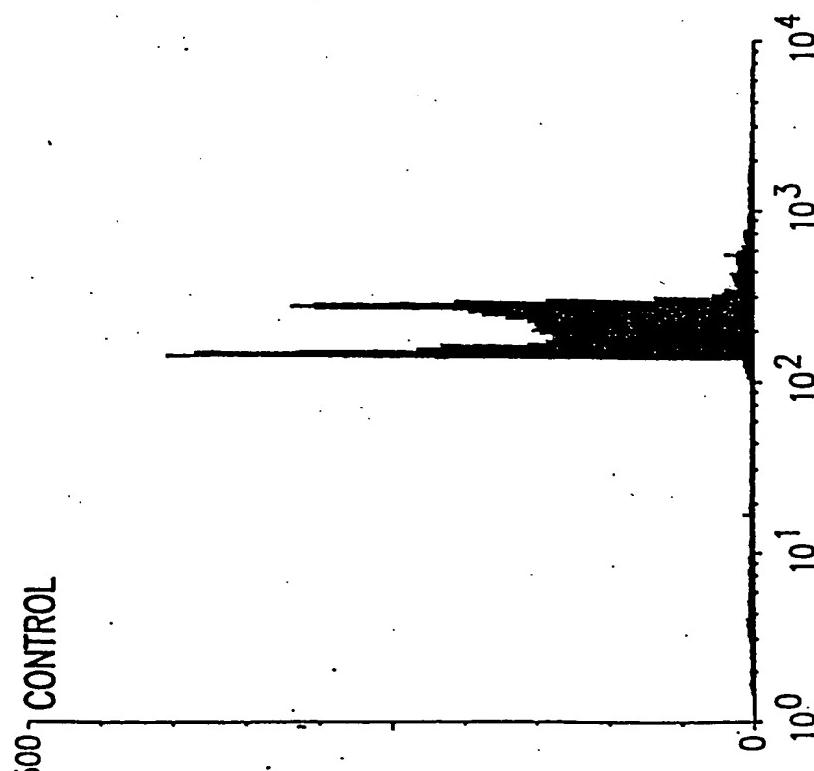
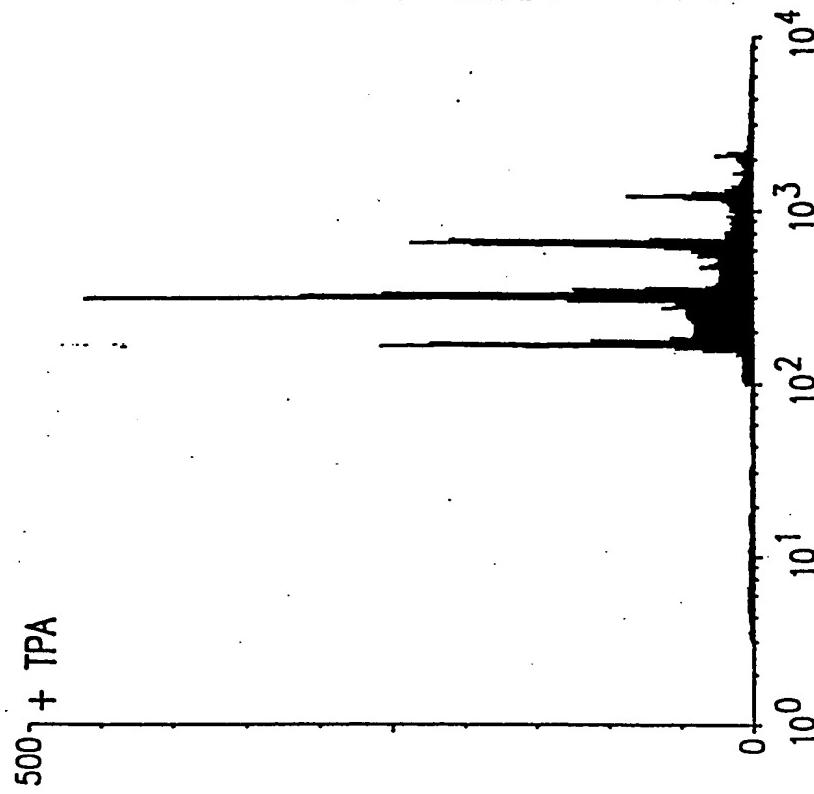
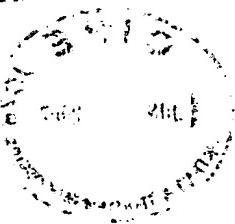


FIG. 14A

FIG. 14B

Title: NOVEL
MEGAKARYOCYTIC PROTEIN
TYROSINE KINASES
Inventor(s): Axel ULLRICH et al.
Appl. No.: 09/977,261

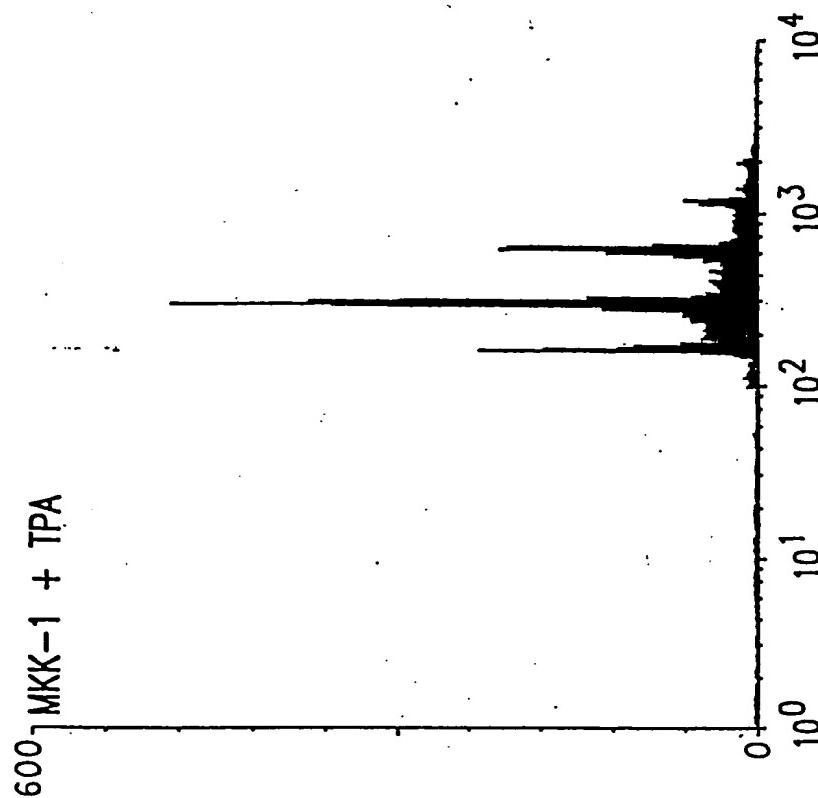


FIG. 14D

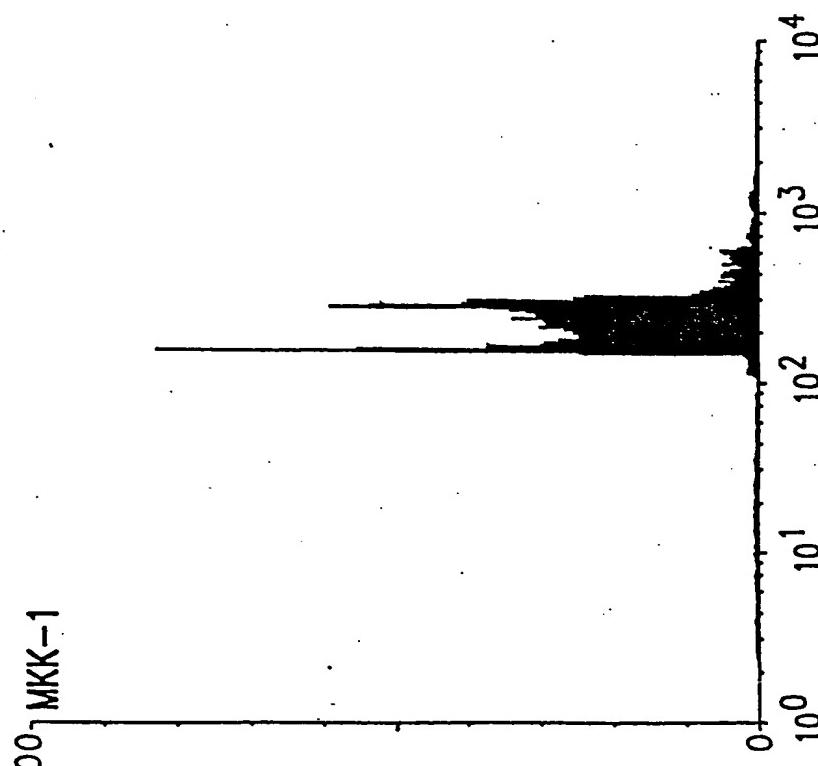


FIG. 14C